

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the above-referenced application:

1 1.-3. (Canceled)

1 4. (Currently amended) A module for converting an optical signal to
2 a digital signal comprising:

3 an optical filter passing a filtered signal comprising a select range of
4 frequencies present in an optical signal;

5 a photodiode converting the optical signal to a current;

6 a transimpedance amplifier converting the photodiode current to a voltage at
7 an output of the transimpedance amplifier;

8 a sawtooth generator producing a sawtooth wave;

9 a synchronization input coupled to the sawtooth generator; ; and

10 a comparator directly coupled to the output of the transimpedance amplifier,
11 the comparator comparing the sawtooth wave with the output of the transimpedance
12 amplifier to produce a pulse-width modulated digital output.

1 5.-9. (Canceled)

1 10. (Currently amended) A method of converting the intensity of an
2 optical source to a pulse-width modulation signal in a single integrated circuit
3 comprising:

4 filtering incident light from the optical source such that wavelengths of visible
5 light impinge a sensor sensitive to a select range of wavelengths, wherein the select
6 range of wavelengths is associated with one of red, green and blue light;

7 converting the select range of wavelengths of visible light to a current;

8 converting the current to a voltage;

9 generating a sawtooth wave synchronized to an external signal; ; and

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10 comparing the sawtooth wave to the voltage without inverting the voltage
11 representing the select range of wavelengths of visible light to produce a digital pulse-
12 width modulated output, wherein the steps of converting the current, generating and
13 comparing are accomplished in a single integrated circuit.

1 11.-12. (Canceled)

1 13. (Currently amended) An apparatus for converting light to a digital
2 signal comprising:

3 a single module comprising a ground pin, a single supply pin, a
4 synchronization pin and an output pin, the module further comprising:

5 an optical filter passing a filtered signal comprising a select range of
6 frequencies associated with one of red, green and blue light present in an
7 optical signal;

8 a photodiode configured to convert incident light to a current;

9 a transimpedance amplifier configured to convert the current to a
10 voltage;

11 a sawtooth generator configured to produce a sawtooth wave
12 responsive to a synchronization signal provided via the synchronization pin;

13 and

14 a comparator configured to receive the sawtooth wave and the voltage
15 to produce a pulse-width modulated digital output, wherein an output of the
16 transimpedance amplifier is directly applied to an input of the comparator.

1 14. (Previously presented) The integrated circuit of Claim 13 where the
2 module further comprises a single substrate.

1 15. (Previously presented) The integrated circuit of Claim 14 where the
2 transimpedance amplifier, sawtooth generator, and comparator are implemented on
3 the single substrate.

1 16. (Canceled)

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- 1 17. (Previously presented) The integrated circuit of Claim 13 where the
- 2 transimpedance amplifier is directly coupled to the comparator.